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have one or more zeros. At such a point, the sine of the angle, and hence the angle itself, must be zero and the surface touches the plane. This, however, is absurd; no surface can touch every plane not through an isolated singular point. Let us, then, suppose that the algebraic function is a constant. The surface will then meet every plane at a constant angle, every plane through a normal will cut it everywhere orthogonally. Hence each two normals are coplanar, the normals are all concurrent or parallel, and the surface is either a sphere or a plane.

CONCLUSION. *Every algebraic surface which has no singular curve is a sphere or plane.*

ORGANIZATION OF A MINNESOTA SECTION OF THE MATHEMATICAL ASSOCIATION OF AMERICA.

On November 8, 1916, a committee consisting of Messrs. G. N. Bauer, R. M. Barton and G. W. Hartwell, representing the Minnesota members of the Mathematical Association of America, sent out a circular letter over the state inviting all teachers of college mathematics to meet at the University of Minnesota on Friday, December 1, 1916, for the purpose of considering the possibility and wisdom of organizing a Minnesota section of the Mathematical Association of America.

Twenty-three teachers attended this meeting sixteen of whom were already, or have since become, members of the Association. These members are as follows: Sister M. Magna, of St. Benedict's College, St. Joseph; Miss E. G. Berger, of St. Catherine's College, St. Paul; Wm. C. Etzel, College of St. Thomas, St. Paul; Paul E. Kretzmann, Concordia College, St. Paul; L. E. Lunn, Supt. of Schools, Heron Lake; Thos. C. Wollan, Fergus Falls; G. N. Bauer, C. McCormick, Wm. O. Beal, H. H. Dalaker, A. L. Underhill, Vera L. Wright, H. L. Slobin, W. H. Bussey, R. M. Barton, and W. D. Reeve, of the University of Minnesota.

In the morning session Dr. Bauer presented the report of the committee in which he discussed some of the problems confronting college teachers in Minnesota. It was then decided by unanimous vote to form a Minnesota Section of the Mathematical Association of America and a committee was chosen to nominate officers for the ensuing year. The meeting then adjourned to a luncheon arranged in Alice Shevlin Hall at the University.

At the beginning of the afternoon session the nominating committee recommended Dr. G. N. Bauer for President, W. D. Reeve for Secretary-Treasurer and Dr. C. N. Gingrich as the third member of an executive committee. In addition the committee selected J. S. Mikesh and Miss E. G. Berger to act with the executive committee as a committee on policy for the section. The recommendations of the nominating committee were accepted.

It was further agreed to hold two meetings of the section each year, one in the spring and one in the autumn, the time to be set definitely by the executive committee.

The following program was then given: "Cultural value of college mathematics," J. S. Mikes; "Report of current research in transcendental curves and numbers," Dr. H. L. Slobin; "Thoughts on a natural number system," L. E. Lunn, Heron Lake; "A solution of the differential equation $dy/dt + (\alpha + \beta \cos t)y = \rho \cos t$," W. O. Beal; "Unification of mathematics in the high school and college," W. D. Reeve.

W. D. REEVE, *Secretary*.

BOOK REVIEWS.

SEND ALL COMMUNICATIONS TO W. H. BUSSEY, University of Minnesota.

NEW BOOKS RECEIVED.

ELEMENTS OF ANALYTIC GEOMETRY. By Alexander Ziwet and Louis Allen Hopkins. The Macmillan Company, New York, 1916. viii + 272 pages. \$1.60.

FIRST YEAR MATHEMATICS. By George W. Evans and John A. Marsh. Charles E. Merrill Co., New York, 1916. 253 pages. \$0.90.

PROJECTIVE ORNAMENT. By Claude Bragdon. The Manas Press, Rochester, N. Y., 1915. 79 pages. \$1.50.

A PRIMER OF HIGHER SPACE. By Claude Bragdon. The Manas Press, Rochester, N. Y., 1913. 79 pages. \$1.25.

FOUR DIMENSIONAL VISTAS. By Claude Bragdon. Alfred A. Knopf, New York, 1916. 134 pages. \$1.25.

A SHORT COURSE IN ELEMENTARY MECHANICS FOR ENGINEERS. By Clifford Newton Mills. D. Van Nostrand Co., New York, 1916. xi + 127 pages. \$1.00.

INTRODUCTION TO MATHEMATICS. Junior High School Series. By Robert L. Short and William H. Elson. D. C. Heath and Co., Boston, 1916. vii + 200 pages. \$1.00.

NEW PLANE AND SOLID GEOMETRY. By Edward Rutledge Robbins. American Book Company, New York, 1916. viii + 460 pages.

Differential Calculus. By H. B. PHILLIPS. John Wiley and Sons, New York, 1916. v + 162 pages.

This small compact volume contains a brief course on differential calculus in 139 pages followed by 14 pages of supplementary exercises and 9 pages devoted to answers to problems and an index. It contains all that can be covered in a semester course of 3 hours a week. It may even be made to serve as the basis of a four- or five-hour course. The following quotation from the preface tells what was the author's idea in writing the book: "In this text on differential calculus I have continued the plan adopted for my *Analytic Geometry*, wherein a few central methods are expounded and applied to a large variety of examples to the end that the student may learn principles and gain power. In this way the differential calculus makes only a brief text suitable for a term's work and leaves for the integral calculus, which in many respects is far more important, a greater proportion of time than is ordinarily devoted to it."

The reviewer finds the following things about the book worthy of comment:

- (1) In the "Introduction" (Chapter I), along with the usual definition of infinitesimals, is given the idea of the *order of infinitesimals*.
- (2) "Derivatives and Differentials" are taken up side by side in Chapter II.
- (3) Applications of